

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Please cancel claims 1 - 7 without prejudice or disclaimer of the subject matter contained therein.

Claims 1 - 7 (canceled)

8. (withdrawn) A plasma processing method of processing a workpiece by using plasma generated in a chamber, the workpiece being disposed inside a light transmissive member disposed in the chamber, comprising the steps of:

detecting and storing first data of light inside the light transmissive member before processing the workpiece;

detecting second data of light inside the light transmissive member generated during processing the workpiece; and

detecting a state of processing the workpiece by using the second data added to the stored first data.

9. (withdrawn) A plasma processing method of processing a workpiece through reaction with plasma generated in a chamber, the workpiece being disposed inside a light transmissive member disposed in the chamber, comprising the steps of:

detecting and storing first data of light inside the light transmissive member before processing the workpiece;

detecting second data of light inside the light transmissive member generated during processing the workpiece; and  
detecting the reaction by using the second data added to the stored first data.

10. (withdrawn) A plasma processing method of processing a workpiece by using plasma generated in a chamber, the workpiece being disposed inside a light transmissive member disposed in the chamber, comprising the steps of:

detecting and storing first data of light inside the light transmissive member before processing the workpiece;  
detecting second data of light inside the light transmissive member generated after processing the workpiece; and  
controlling an operation of the system by using the second data added to the stored first data.

11. (withdrawn) A plasma processing method of processing a workpiece through reaction with plasma generated in a chamber, the workpiece being disposed inside a light transmissive member disposed in the chamber, comprising the steps of:

detecting and storing first data of light inside the light transmissive member before processing the workpiece;  
detecting second data of light inside the light transmissive member generated after processing the workpiece; and  
diagnosing the system by comparing the second data with the stored first data.

12. (new) A plasma processing apparatus for processing a workpiece using plasma generated in a cylindrical chamber, comprising:

a light transmissive member disposed in the chamber, the workpiece being disposed inside of the light transmissive member; and

a member mounted on a side wall of the chamber covering at least one hole disposed in the side wall and having mounted thereon a light emitting device which emits predetermined light into the chamber while the plasma is not generated and a light receiving device which receives the predetermined light reflected inside the chamber and transmitted through the light transmissive member;

wherein a state of processing of the workpiece is detected using data obtained from the predetermined light received by the light receiving device through the light transmissive member and data obtained from light inside the chamber which is received by the light receiving device through the light transmissive member during processing of the workpiece.

13. (new) A plasma processing apparatus according to claim 12, wherein the state of processing of the workpiece is detected by correcting the data obtained from the light inside the chamber during processing of the workpiece using the data obtained from the predetermined light.

14. (new) A plasma processing apparatus according to claim 13, wherein the state of processing of the workpiece is adjusted using the data obtained from the predetermined light and the data obtained from the light inside the chamber.

15. (new) A plasma processing apparatus according to claim 12, wherein the state of processing of the workpiece is adjusted using the data obtained from the predetermined light and the data obtained from the light inside the chamber.

16. (new) A plasma processing apparatus according to claim 12, wherein an abnormal state of processing of the workpiece is detected using the data obtained from the predetermined light.

17. (new) A plasma processing apparatus for processing a workpiece using plasma generated in a cylindrical chamber, comprising:

a light transmissive member disposed in the chamber, the workpiece being disposed inside of the light transmissive member;

a member mounted on a side wall of the chamber covering at least one hole disposed in the side wall and having mounted thereon a light emitting device which emits predetermined light into the chamber while the plasma is not generated and a light receiving device which receives the predetermined light reflected inside the chamber and transmitted through the light transmissive member so that an optical path of the predetermined light emitted from the light emitting device and an optical path of the predetermined light reflected inside the chamber and received by the light receiving device are substantially in parallel;

wherein a state of processing of the workpiece is detected using data obtained from the predetermined light received by the light receiving device through the light transmissive member and data obtained from light inside the chamber which is received by the light receiving device through the light transmissive member during processing of the workpiece.

18. (new) A plasma processing apparatus according to claim 17, wherein the light emitting device emits the predetermined light introduced through a fiber into the chamber.

19. (new) A plasma processing apparatus according to claim 17, wherein the member having the light emitting device and the light receiving device mounted thereon is mounted on the side wall of the chamber so that a front end of the light receiving device is provided at the at least one hole in the side wall.

20. (new) A plasma processing apparatus according to claim 17, wherein the state of processing of the workpiece is adjusted using the data obtained from the predetermined light and the data obtained from the light inside the chamber.

21. (new) A plasma processing apparatus according to claim 18, wherein the state of processing of the workpiece is adjusted using the data obtained from the predetermined light and the data obtained from the light inside the chamber.

22. (new) A plasma processing apparatus according to claim 19, wherein the state of processing of the workpiece is adjusted using the data obtained from the predetermined light and the data obtained from the light inside the chamber.

23. (new) A plasma processing apparatus according to claim 17, wherein an abnormal state of processing the workpiece is detected using the data detected from the predetermined light.

24. (new) A plasma processing apparatus according to claim 19, wherein an abnormal state of processing the workpiece is detected using the data detected from the predetermined light.

25. (new) A plasma processing apparatus according to claim 19, wherein an abnormal state of processing the workpiece is detected using the data detected from the predetermined light.